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(54) Title: ULTRAHIGH BRIGHTNESS CALCINED CLAY PIGMENT, MANUFACTURE AND USE THEREOF

(57) Abstract

A selected kaolin crude or crude fraction is purified by physical or physical/chemical means, such as froth flotation and/or selective flocculation, to remove discrete particles of TiO₂ and in some cases, discrete iron minerals. The pure (or purified clay) must then be agitated in the presence of water with a particulate grinding media such as, for example, sand, alumina or zirconia beads, to increase the 2 micron content of the kaolin. An intermediate ground product that contains a substantial weight percentage of particles finer than 1 micron is generated as a result of grinding. The particles finer than 1 micron in the ground kaolin also include those particles in the previously pure or purified kaolin that were present in the naturally occurring clay. A pulp of the ground clay is then fractionated to remove particles larger than 2 microns, e.g., to remove at least 95 %, preferably at 100 % by weight, of the particles larger than 2 microns, while minimizing the removal of particles finer than 1 micron. The resulting fine particles size fraction is then treated by conventional series of steps, i.e., optional bleaching, drying, pulverization, calcination and repulverization to produce a low abrasion, ultrahigh brightness (typically 96 %) calcined kaolin pigment.

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(21) International Application Number: PCT/US99/28271 (22) International Filing Date: 30 November 1999 (30.11.99) (30) Priority Data: 60/111,303 7 December 1998 (07.12.98) US (71) Applicant: EASTMAN CHEMICAL COMPANY [US/US]; 100 North Eastman Road, Kingsport, TN 37660 (US). (72) Inventors: GILMER, John, Walker; 2624 Wildwood Drive, Kingsport, TN 37660-4754 (US). MATAYABAS, James, Christopher, Jr.; 3429 Wesley Road, Kingsport, TN 37664-4048 (US). BARBEE, Robert, Boyd; 500 Rambling Road, Kingsport, TN 37663-2131 (US). (74) Agents: KATZ, Mitchell, A. et al.; Needle & Rosenberg, P.C., Suite 1200, The Candler Building, 127 Peachtree Street, N.E., Atlanta, GA 30303-1811 (US).		(81) Designated States: AU, BR, CA, CN, IN, JP, MX, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: POLYMER/CLAY NANOCOMPOSITE AND PROCESS FOR MAKING SAME (57) Abstract This invention relates to a polymer-clay nanocomposite comprising (i) a melt-processible matrix polymer, and incorporated therein (ii) a clay-organic cation intercalate comprising a layered clay material intercalated with at least two organic cations, wherein at least one organic cation comprises ligands each having 7 or less carbons and at least one organic cation comprises at least one ligand having 12 or more carbons. The invention also relates to a process for preparing a nanocomposite and articles produced from a nanocomposite.		